

REMARKS

Claims 1 and 4-19, as amended, remain herein. Claims 1 and 5-16 have been amended. Claim 1 has been amended to incorporate the limitations of claims 2 and 3. Claims 2 and 3 have been cancelled. Support for the amendment of claim 1 may be found throughout the specification (see, e.g., original claims 2 and 3). Claims 4-16 have been amended for clarity.

Independent claim 1 recites an apparatus of applying ultrasonic vibration to a resin material which applies the ultrasonic vibration to the resin material in a molten state, the apparatus including: a vibrator which applies ultrasonic vibration to a resin material, or a vibration transmission member which transmits vibration of the vibrator to a resin material, wherein the vibrator or the vibration transmission member has high adhesive properties to the resin material, the vibrator or the vibration transmission member is located in a channel of a flowing molten resin material in contact with the resin material and the vibrator or the vibration transmission member is positioned to transmit vibration in a direction perpendicular to a flow direction of the flowing molten resin material; and vibration transmission inhibition means is positioned to substantially inhibit members other than the resin material from being vibrated by the vibration of the vibrator or the vibration transmission member.

1. Claim 13 was rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. Claim 13 is amended to moot this rejection. Claim 14 is similarly amended for clarity.

2. Claims 1, 4, 7, 8 and 12-18 were rejected under 35 U.S.C. § 102(b) over Isayev et al. U.S. Patent 5,284,625. Claim 1 has been amended to incorporate the limitations of claims 2 and 3, which were not subject to this rejection.

Isayev does not disclose an apparatus wherein the vibrator or the vibration transmission member has high adhesive properties to the resin material, and the vibrator or the vibration transmission member is positioned to transmit vibration in a direction perpendicular to a flow direction of the flowing molten resin material. In Isayev, the vibrator is parallel to the flow direction of the rubber (see Isayev at Figure 1). In addition, there is no reference in Isayev to a vibrator or a vibration transmission member having high adhesive properties to the resin material.

Thus, Isayev does not disclose all elements of applicants' claims and, therefore, it is not an adequate basis for a rejection under § 102(b). Applicants respectfully request reconsideration and withdrawal of this rejection.

3. Claims 1, 2, 7, 8, 12, 15, 16 and 18 were rejected under 35 U.S.C. § 102(b) over Jameson et al. U.S. Patent 6,010,592. Claim 1 has been amended to incorporate the limitations of claims 2 and 3. Claim 3 was not subject to this rejection.

Jameson does not disclose an apparatus wherein the vibrator or the vibration transmission member has high adhesive properties to the resin material, and the vibrator or the vibration transmission member is positioned to transmit vibration in a direction perpendicular to a flow direction of the flowing molten resin material. In Jameson, the vibrator is parallel to the flow

direction of the rubber (see Jameson at Figure 1 and column 8, lines 39-43). In addition, contrary to the assertion in the Office Action, there is no reference in Jameson to a vibrator or a vibration transmission member having high adhesive properties to the resin material. The Office Action cites Jameson column 15, lines 10-35 in support of the assertion that Jameson discloses a vibrator or a vibration transmission member having high adhesive properties to the resin material, but that passage simply describes the geometry of the horn as shown in Jameson Figure 1. There is no reference in the passage to the adhesive properties of the horn vis-à-vis the resin material.

Thus, Jameson does not disclose all elements of applicants' claims and, therefore is not an adequate basis for a rejection under § 102(b). Applicants respectfully request reconsideration and withdrawal of this rejection.

4. Claims 1-5, 7, 12 and 15-18 were rejected under 35 U.S.C. § 102(e) over Allan et al. U.S. Patent Publication 2006/0165832.

Allan does not disclose an apparatus wherein the vibrator or the vibration transmission member has high adhesive properties to the resin material. Contrary to the assertion in the Office Action, there is no reference in Allan to a vibrator or a vibration transmission member having high adhesive properties to the resin material. The Office Action cites Allan's paragraphs 0038-0040 in support of the assertion that Allan discloses a vibrator or a vibration transmission member having high adhesive properties to the resin material, but that passage simply describes the geometry of the sonotrode as shown in Allan's Figure 1. There is no reference in the passage to the adhesive properties of the sonotrode vis-à-vis the resin material.

Applicants respectfully request reconsideration and withdrawal of this rejection.

5. Claim 6 was rejected under 35 U.S.C. § 103(a) over Isayev or Allan.

As discussed above, neither Isayev nor Allan discloses all elements of applicants' claims. Furthermore, Isayev and Allan disclose nothing that would have suggested applicants' claimed invention to one of ordinary skill in the art. There is no disclosure or teaching in Isayev, Allan, or otherwise in this record, that would have suggested the desirability of modifying any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Applicants respectfully request reconsideration and withdrawal of this rejection.

6. Claims 9-11 were rejected under 35 U.S.C. § 103(a) over Isayev, Jameson, or Allan, in view of Rice U.S. Patent 5,269,860.

As discussed above, Isayev, Jameson, and Allan do not disclose all elements of applicants' claims. None of Isayev, Jameson, or Allan discloses an apparatus wherein the vibrator or the vibration transmission member has high adhesive properties to the resin material, and the vibrator or the vibration transmission member is positioned to transmit vibration in a direction perpendicular to a flow direction of the flowing molten resin material.

Rice does not disclose what is missing from Isayev, Jameson, or Allan. First, Rice does not teach or suggest positioning a vibrator or a vibration transmission member to transmit vibration in a direction perpendicular to a flow direction of the flowing molten resin material. In Rice, there is no flow of a resin material. Rice is concerned with bonding a thermoplastic sheet to another thermoplastic textile or a non-thermoplastic textile surface.

In addition, Rice does not disclose or suggest a vibrator or a vibration transmission member having high adhesive properties to the resin material. Rice is concerned with ultrasonic welding, not with improving the mechanical properties of a resin material. Rice explains that ultrasonic energy is easily transmitted through amorphous resins (see Rice at column 2, lines 64-67), but there is nothing in Rice suggesting the use of a vibrator or a vibration transmission member having high adhesive properties to a resin material. In Rice, the amorphous resin is bonded to another material, but the vibrator itself does not and is not modified to have high adhesive properties to the resin material.

Thus, none of Isayev, Jameson, Allan, nor Rice discloses all elements of applicants' claims. Furthermore, Isayev, Jameson, Allan, and Rice disclose nothing that would have suggested applicants' claimed invention to one of ordinary skill in the art. There is no disclosure or teaching in Isayev, Jameson, Allan, Rice, or otherwise in this record, that would have suggested the desirability of modifying any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Applicants respectfully request reconsideration and withdrawal of this rejection.

7. Claim 19 was rejected under 35 U.S.C. § 103(a) over Isayev, Jameson, and Allan.

As discussed above, none of Isayev, Jameson, or Allan discloses all elements of applicants' claims. Furthermore, Isayev, Jameson, and Allan disclose nothing that would have suggested applicants' claimed invention to one of ordinary skill in the art. There is no disclosure or teaching in Isayev, Jameson, Allan, or otherwise in this record, that would have suggested the desirability of modifying any portions thereof effectively to anticipate or suggest applicants'

Serial No. 10/559,743
Atty Dkt No. 28955.1062

presently claimed invention. Applicants respectfully request reconsideration and withdrawal of this rejection.

For all of the foregoing reasons, all claims 1 and 4-19 are now fully in condition for allowance, which is respectfully requested. The PTO is hereby authorized to charge or credit any necessary fees to Deposit Account No. 19-4293. Should the Examiner deem that any further amendments would be desirable in placing this application in even better condition for issue, she is invited to telephone applicant's undersigned representative.

Respectfully submitted,

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Date: February 4, 2008

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